

205

Begin

Reel # 510
Shibalovskiy, AN

SHIBALOVSKIY, A.N.

Geography study plots in seven-year schools. Geog. v shkole 21
no.3:56-57 My-Je '58. (MIRA 11:6)

1. Shkola No.58 Severnoy zheleznoy dorogi, stantsiya Beskudniko,
Moskovskoy oblasti. (Geography--Study and teaching)

VATSURO, Ye.G.;SHIBANOV, A.A.

Subjective errors of L. A. Orbek in his treatment of the Pavlovian theory on cortical signal systems. Fiziol. zh. SSSR 39 no.3:375-385 May-June 1953. (CML 25:1)

1. Leningrad.

SHIBANEV, B.V., inzh.

New techniques for casting high-quality piston rings. Rech. transp.
17 no. 7:33-35 J1 '58. (MIRA 11:8)

(Founding)
(Piston rings)

DAVIDOV, I.; SHIRANKOV, M.

Our readers' letters. Avt. transp. 36 no.9:51 S '58. (MIRA 11:10)

1. Nachal'nik tekhnicheskogo otdela upravleniya transporta sovnarkhoza
GruzSSR (for Davidov). 2. Direktor 19-y avtobusy Glavnogo upravleniya
gruzovogo avtotransporta Mosgorispolkoma (for Shibankov).
(Automobiles)

AUTHOR: Shibanov, A., Engineer SOV/4-58-11-27/31

TITLE: By Invisible Sails (Na nevidimykh parusakh)

PERIODICAL: Znaniye - sila, 1958, Nr 11, pp 34 - 35 (USSR)

ABSTRACT: The author explains the working principle of the ordinary athodyd ram jet engine (PVRD), stating that for the new type of engine no devices are planned for injecting fuel into the combustion chamber. Dealing with the "freely available energy", he describes how the molecules of nitrogen and oxygen dissociate at high altitudes, and how energy is liberated when released atoms recombine into molecules. The reaction of forming molecules can be brought about and accelerated with the help of special chemical catalysts. The construction of the new athodyd ram jet engine is based on this phenomenon. After having passed the inlet diffuser of the engine, the air comes to a chamber holding the required catalyst. Under its influence the gas atoms recombine into molecules, thereby liberating a great quantity of energy. The temperature and pressure of the gases increase rapidly and flow out from the nozzle at high speed. Gold has proved to be the best catalyst. For a lengthy flight, an aircraft supplied with such an engine will not require a large quan-

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By Invisible Sails

SOV/4-58-11-27/31

tity of fuel, and the supply of ionospheric fuel is inexhaustible. Scientists have already passed the theoretical stage of developing the new engine and have come close to making an experimental model. Many scientists believe that a coleopter - a plane with circular wings - will be most suitable for the new engine. The aircraft will be launched to a high altitude and speeded up by means of special rocket accelerators which will be dropped when the fuel they contained has been used up, or by means of supplementary liquid fuel rocket engines attached to the aircraft. The author also mentions the possibility of making combined engines, in which both conventional fuel and that of the ionosphere will be used. There are 4 drawings.

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SHIBANOV, A.

Ballistic airplane of the future. Znan.sila 33 no.12:19 D '58.
(MIRA 11:12)
(Space flight)

SHIBANOV, A.

Rural school follows a new course. Nauka i pered.op.v sel'-
khoz. 9 no.9:57-59 S '59. (MIRA 13:2)

1. Zaveduyushchiy sektorom metodiki izucheniya osnov sel'-
skokhozyaystvennogo proizvodstva Instituta metodov obucheniya
Akademii pedagogicheskikh nauk RSFSR.
(Rural schools)

S/004/60/000/02/01/006

AUTHOR: Shibanov, A., Engineer

TITLE: Towards Stars

PERIODICAL: Znaniye - Sila, 1960, No 2, p 2

TEXT: The author, receiving launching of rockets from the USSR to the Central Pacific on January 20 and 31, 1960, emphasizes the necessity of lighter and more efficient fuels for interplanetary rockets. One of the possibilities would be use of energy liberated by the fission of Uranium nuclei. One kilogram of nuclear fuel could supply 22 billion of calories instead of the 11,000 calories provided by one kilogram of petrol. A still greater reduction of fuel could be achieved by use of solar energy, i.e., the thermonuclear fusion reaction. Instead of a fission of heavy nuclei a fusion of light nuclei takes place. Numerous collectives of Soviet physicists and engineers are striving towards a method of utilization of thermonuclear reactions. If this is achieved, the controlled energy will be used primarily in thermonuclear power stations and also in transport, particularly for space rockets. The basic idea is as follows: The combustion chamber of a thermonuclear rocket engine is filled with a mixture containing

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S/004/60/000/009/002/005
A005/A001

26.1511

AUTHOR: Shibanov, A.TITLE: Driven by a Solar Sailing ¹⁹ ₁₇

PERIODICAL: Znaniye - Sila, 1960, No. 9, p. 22

TEXT: The author considers the utilization of the light pressure in cosmic navigation when applying a big parabolic reflector as solar sailing which is similar to a photon rocket. The considerations are based on the calculations of an American scientist that the force exerted by the light pressure on a plastic mirror-equipped cosmic ship gives rise to acceleration of 0.16 cm/sec, which allows a space researching apparatus to move out of the Earth's atmosphere, where the Earth's gravity is small. The sailing apparatus moving along a helix-like orbit around the Earth can withdraw from the Earth, when turning the reflector in accordance with the directions of the driving light-pressure force and the apparatus motion along the orbit. The speed of the apparatus increases in time and makes it possible to overcome the Earth's gravity and to reach the space out of the solar system or, as an example, Venus. In the latter case, it is necessary to hold in control the reflector position against the solar light pressure according

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Driven by a Solar Sailing

to the navigation principles. The return to the Earth requires the opposite position of the reflector; the speed increases along the helix until attaining the dimensions of the Earth's orbit. In the interplanetary space, the cosmic apparatus is effected by the solar gravity exceeding the light pressure force by two times, and may reach the Venus's orbit and return in course of less than one year when its weight is 10 kg and the reflector of 10-kg weight has 70-m diameter. There are 3 figures. ✓

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26.4110

AUTHOR: Shibanov, A., EngineerTITLE: Cosmic Speed in the LaboratoryPERIODICAL: Znaniye - Sila, 1960, No. 10, pp. 4-6

TEXT: The author consideres the experimental possibilities of obtaining cosmic speeds in aerodynamic windtunnels for testing the aerodynamic properties of aircraft, satellites, and space vehicles. He subdivides his article into the topics: 1) Flight at the Earth's surface; 2) Speed storage; 3) Condensation treshold; 4) Shock waves\avail; 5) With satellite's speed. - The known windtunnels out of date are briefly described and their limits of power and applicability are noted. - The aerodynamic energy storage systems with short-time discharge of compressed or rarefied air and their limits of application and power are mentioned. - The tunnel systems do not allow th: increase of the flow speed because of the condensation treshold of oxygen in air in consequence of its cooling down at expansion, when the air flow exceeds the fourfold sonic speed. Heating the air is wasteful and requires temperatures exceeding the melting point of the tunnel walls. Replacing air by other gases as helium

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Cosmic Speed in the Laboratory

leads to false measurement results. Tests of models moving in resting air or in air flowing against the moving model allow relative speeds up to thirtyfold sonic speed, but they do not allow the measurement of the aerodynamic characteristics required. - Non-Soviet aerodynamic tunnels operating with shock waves attained air stream speeds of 5,200 m/sec at the temperature of the air stream amounting to 20,000°C. Hereat, the air flows from a high-pressure chamber into a vacuum chamber; the high-pressure chamber is sealed by a diaphragma broken through by a sudden pressure increase in the chamber at beginning the flow; a high-intense shock wave initiates the flow. The operation duration of such shock tunnels amounts to a few thousandths of a second and requires high-speed electronic equipment. The gas streams with a high absolute speed which is relatively small in comparison with the sonic speed increased considerably at high air temperatures, when operating without expansion nozzle. When adding an expansion nozzle, the temperature of the air and the sonic speed in air decrease, and the speed of air increases; therefore, shock-wave tunnels with expansion nozzle make it possible to attain air speeds of sixteenfold sonic speed. - The method developed in the USA is described, which uses the intense electric discharge for initiating the shock wave and the air flow by breaking through the diaphragm: the pressure in the high-compression chamber was 35-

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Card 2/3

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32634
S/029/62/000/001/003/004
D037/D113

AUTHOR: Shibanov, A., Engineer, Member of the Literary Association
of the journal

TITLE: Wings for man

PERIODICAL: Tekhnika molodezhi, no. 1, 1962, 16-17

TEXT: This popular article deals with the development of ornithopters. The author mentions one- and two-seater engineless aircraft, those with immovable wings and a rotating propeller and those similar to helicopters. Members of the ornithopter section of DOSAAF have developed and tested various types of ornithopters, some reproducing the flight of flies and others the flight of birds. In the author's opinion, human flight without the use of engines can only be achieved by reducing energy transmission losses and resistance, and by improving present methods of bird-like flights and designs of existing ornithopters. Some experts suggest equipping ornithopters with small engines with a capacity of 1.5 to 2 hp in order to supplement human muscle power. There are 3 figures.

ASSOCIATION: Litob"yedineniye zhurnala (Literary Association of the Journal)

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S/029/62/000/005/001/003
D045/D114

AUTHOR: Shibanov, A., Engineer

TITLE: Space dictates new shapes for space vehicles

PERIODICAL: Tekhnika molodezhi, no.5, 1962, 2-4

TEXT: Some ideas put forward by American and non-Russian specialists in connection with reducing the weight of space vehicles without considerably reducing their dimensions are evaluated. In this connection the following main topics are discussed: the best shape for manned space vehicles carrying a heavy load of radiation shielding should be that of a sphere; the use of heat radiators; the use of coatings on satellites, which, depending on whether the space vehicle is to be cooled or heated, can change color; use of American-devised pneumatic devices in space; materials proposed by American specialists for the construction of future spacecraft. There are 2 figures.

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SHIBANOV, A., inzh.

Re-entry corridor from outer space. *Tekhnika*, 31 no.9:3-4 '63.
(MIRA 16:9)

1. Chlen literaturnogo ob'yedineniya zhurnala "Tekhnika molodezhi".
(Astronautics)

L 62493-65 EEO-2/EWP(m)/EPF(c)/EEC-4/EWG(j)/EPA(s)-2/EWG(v)/EPA(w)-2/EWA(h)/T/
EWP(j)/EWP(k)/EWA(c)/EWT(d)/EWT(l)/EWT(m)/EWP(l)/FS(v)-3/EWP(l)/EWA(d)/EWA(l)/
EWP(e)/EWP(w)/EWP(v)/EWP(t)/EEC(k)-2 IJP(c) TT/EM/EM/WH/WH/WH/JD/GW

ACCESSION NR: AP5016363 UR/0029/65/000/006/0003/0004

AUTHOR: Shibanov, A. (Engineer) 120

TITLE: Factory in orbit B

SOURCE: Tekhnika - molodezhi, no. 6, 1965, 3-4, and insert facing p. 4

TOPIC TAGS: aluminum, tin, magnesium, vacuum physics, metal fiber, glass fiber, metal whisker, space simulation, vaporization, spacecraft structure, aeronautic engineering, spacecraft, meteor, stainless steel, titanium

ABSTRACT: Despite the difficulties encountered in testing materials for use in space, the principle candidates for meteor screens for future interplanetary spacecraft (steel, titanium, aluminum, magnesium, several other metals, and plastics) have already passed the first round of selection tests. In these tests, special guns were used to fire artificial meteors at velocities of 10,000 m/sec and higher. Space-simulation tests have shown, for example, that a double hull of different materials will protect a spacecraft as well as a single hull of three times greater thickness. Even the high vacuum of space, equal to 10^{-5} mm Hg, can be simulated on Earth.

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ACCESSION NR: AP5016363

A very important consideration when selecting materials for space is the evaporation of matter in vacuum. Since such sublimation represents a serious danger, it is necessary to learn on Earth which materials can cause failures in satellites or spacecraft. A large group of metals, including stainless steel, aluminum and tin, have successfully withstood tests in vacuum. This does not apply to such metals as magnesium; although three years are required for one layer of its atoms to evaporate at 50 degrees, at 150 degrees (normal temperature for the parts of a spacecraft facing the Sun) this layer disappears in only a few days. Cadmium and zinc are completely unsuitable, since their evaporation rate in a vacuum is too great. 4

While examining materials in space-simulation chambers, researchers discovered that aluminum parts acquire a fatigue limit 4 to 7 times higher than normal. Thus, parts used in space can be made thinner and lighter. This is explained by the fact that metal fatigue is accompanied by microscopic cracks which appear on the surface of the metal. In the Earth's atmosphere,

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ACCESSION NR: AP5016363

an extremely thin layer of metal oxide and adsorbent gases forms immediately on the walls of such cracks. This foreign, dissociating interlayer interferes with the healing of the microscopic cracks. Since this formation, which takes place in a millionth of a second on Earth, takes three hours in space, there is time for the cracks to close up. ⁴

Common materials can be strengthened by hundreds or thousands of times if the microscopic defects in their structure can be eliminated. Such materials, already being produced in the laboratory in the form of microscopic "whiskers," may in the future be braided into cables or even formed into entire plates. Extremely strong metal-fiber parts could be made from braided "whiskers" impregnated with plastic. ¹⁵

Metal and glass fibers are already being used in the space industry, e.g., in parachutes used by space vehicles during reentry. A unique cloth, woven from steel filaments 2 times thinner than human hair, can withstand temper- ¹⁴

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ACCESSION NR: AP5016363

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atures of over 800°C. Just one square meter of this cloth contains 18 km of fine wire. Glass fiber is already beginning to replace steel in the space industry. Parts made of glass fiber are more than 2 times stronger than steel.

Rocket casings, the nozzles of rocket engines, combustion chambers, and other parts can be made by winding glass fiber onto a form and laminating it with special resins. It is expected that the low-temperature problem will be solved soon, and that scientists will be able to create fiberglass reinforced plastics which can at least momentarily withstand heat of up to 8000°C. It is further predicted that the strength of glass fiber will be increased by another 7 times and that by 1970 fiberglass parts will constitute half of the weight of space structures. 15, 14, 55

Under conditions of weightlessness it will be possible to create openwork structures which on Earth would not support their own weight. Since high strength will not be needed, it will be possible to use hollow or porous parts. Of special interest are such poor heat-conducting foam plastics as foam poly-

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3

urethanes, which can be used for making insulating partitions and coatings. Their main advantage is that parts can be produced from them in space. Natural solar heating, vacuum, and the cold of space can be used in manufacturing articles from plastic. Ultraviolet rays, more intensive than on Earth, can be used for accelerating polymerization. Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: SV

NR REF Sov: 000

OTHER: 000

ATD Press: 4070-F

space craft materials 18

me
Card 5/5

LITKENS, S.; SHIBANOV, A.; KOROSTELEV, B.; LYUBIMOVA, Vera;
DMITRIYEVA, I. na; OZEROV, Misha; BARANOVA, A.

It happens that... IUn.nat. no.1:30-32 Ja '63. (MIRA 16:1)
(Nature study)

SHIBANOV, A., inzh.

Colored grains. Izobr. i rats. no.4:22-23 163.
(MIRA 16:7)
(Grain) (Seed pellets)

SHIBANOV, A.A., kandidat pedagogicheskikh nauk.

~~Study of agricultural machines in connection with the teaching of physics in rural schools. Fiz. v shkole 7 no.1:64-71 '47. (MLRA 6:11)~~

1. Moscow, Akademiya pedagogicheskikh nauk.
(Agricultural machinery) (Physics--Study and teaching)

VATSURO, Ye.G.; SHIBANOV, A.A.

~~REDACTED~~
Errors of L.A. Orbeli in his treatise of the Pavlonian theory on signal
systems. Fiziol. zh. SSSR 37 no.5:528-538 Sept-Oct 51. (CML 21:4)

1. Leningrad.

SHIBANOV, A. A.

Biology - Study and Teaching

Practical communal work in connection with the teaching of biology. Est. v shkole
No. 2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, June 1953, Uncl.

VATSURO, E.G. (Leningrad); SHIBANOV, a.a. (Leningrad).

Subjective errors of Academician L.a. Orbeli in his treatise on I.P. Pavlov's theory of cortical signal systems. *riziol. zhur.* 39 no.3:375-385 My-Je '53.

(MLRA 6:6)

(Nervous system) (Orbeli, Leon Abgarovich, 1882-)

SHISHKOV, Aleksei Alekseevich

Problems of polytechnical education in rural schools; manual for teachers. 2. izd., perer. I dop. Moscow, Gos. uchebno-pedagog. Izd-vo, 1954. 542p. (55-3306)

5535.R00513 1954

SHIBANOV, A.A., kandidat pedagogicheskikh nauk.

Training students of the 5th - 6th classes in elementary agricultural practices. Est. v shkole no. 4-41-44 J1-Ag '54.
(MLRA 7:8)

1. Akademiya pedagogicheskikh nauk RSFSR.
(Agriculture--Study and teaching)

SHIBANOV, A. A. I

7976. Mel'nikov, A. I., SHIBANOV, A. A. I Korsunskaya, V. M. Osnovy darvinizma. Dlya sred. shkoly. 6-ye izd. kaunas, uchpedgiz, 1955. 140s. s ill. I kart.; 4 l. ill. 22sm. 8000 ekz. lr. 80k. V per.--NA litov. yaz.--(55-3242)

575.4(075)

SO: Knizhuaya Letopis', Vol. 7, 1955

MEL'NIKOV, M.I.; SHIBANOV, A.A.; KORSUNSKAYA, V.M.; RYBAKOVA, N.T., re-daktor; TSIRUL'NITSKIY, N.P., tekhnicheskiy redaktor

[Fundamentals of Darwinism; textbook for class 9 of the secondary school] Osnovy darvinizma; uchebnoe posobie dlia IX klassa srednei skholy. Izd. 6-e. Moskva, Gos. uchebno-pedagog. izd-vo Ministerstva prosveshcheniya RSFSR, 1955. 150 p. (MLRA 8:7)
(Evolution)

SHIBANOV, A.A., STAVROVSKIY, A.Ye; SHCHERBAKOV, M.I.; SMIRNOV, V.I.;
PROFERANSOVA, N.V., redaktor; SOKOLOVA, R.YA., tekhnicheskiy
redaktor.

[Studying agriculture in rural schools] Izuchenie sel'skokhozai-
stvennogo proizvodstva v sel'skoi shkole. Moskva, Izd-vo Akad.
pedagog.nauk RSFSR, 1956. 191 p. (MLRA 10:6)

(Agriculture—Study and teaching)

BULATOV, N.P., redaktor; VOVSI, I.I., redaktor; KOROVIN, F.F.; MALYSHEV,
MEL'NIKOV, M.I.; SKATKIN, M.N.; STAVROVSKIY, A.Ye., SHIBANOV, A.A.; SHCHUKIN, S.V.; GONCHAROV, N.K.; redaktor; TITKOV, P.V., redaktor; BRIUK, V.P., zemnicheskiy redaktor.

General technical training in secondary schools; work practice
of city and rural schools] Politekhnicheskoe obuchenie v srednej
shkole; iz opyta raboty gorodskikh i sel'skikh shkol, Moskva,
1956, 279 p. (MLRA 9:5)

1. Akademiya pedagogicheskikh nauk RSFSR, Moscow,
(Technical education)

VERZILIN, Nikolay Mikhaylovich; ZAVITAYEV, P.A.; KORSUNSKAYA, V.M.; PADALKO, N.V.; RYKOV, N.A.; SOKOLOV, N.L.; SHIBANOV, A.A.; YELAGIN, V.D., redaktor; GORNEK, V.P., tekhnicheskiy redaktor

[Working with pupils on school experimental plots] Methodika raboty s uchashchimisia na shkol'nom uchebno-opytnom uchastke. Pod red. N.M. Verzilina. [Moskva] Izd-vo Akademii pedagog. nauk RSFSR, 1956. 685 p. (MIRA 9:11)

1. Leningradskiy nauchno-issledovatel'skiy institut pedagogiki Akademii pedagogicheskikh nauk (for Verzilin, Korsunskaya, Rykov, Sokolov) 2. Yestestvenno-nauchnyy institut im. P.F. Lesgafta Akademii pedagogicheskikh nauk (for Shibanov) 3. Institut metodov obucheniya Akademii pedagogicheskikh nauk (for Zavitayev, Padalko) 4. Chlen-korrespondent APN RSFSR (for Verzilin)
(School gardens)

SHIBANOV, A.A., kandidat pedagogicheskikh nauk.

Carrying out practical science instruction in rural schools. Est.
v shkole no.2:25-30 Mr-Ap '56. (MLRA 9:7)

1.Institut metodov obucheniya Akademii pedagogicheskikh nauk RSFSR.
(Education, Cooperative) (Agriculture---Study and teaching)

SHIBANOV, A. A. kandidat pedagogicheskikh nauk.

Familiarizing students with the most important aspects of agricultural work. Est. v shkole no. 5:3-9 8-0 '56. (MIRA 9:10)

1. Institut metodov obucheniya Akademii pedagogicheskikh nauk RSFSR.
(Agriculture--Study and teaching)

S. I. B. N. C. V., Aleksey Aleksandrovich; STAVROVSKIY, Alekseyevich; B. N. C. H. E. R. B. K. O. V., Mikhail Ivanovich; TRUYEVTSYVA, M. F., redaktor; NATAPOV, M. I., tekhnicheskij redaktor

[Practical manual on the principles of plant culture and agricultural machinery; a manual for students in grades 8 and 9 of secondary schools] Praktikum po osnovam rastenievodstva i sel'skokhozaiistvennomu mashinovedeniu; posobie dlia uchashchikhsia VIII i IX klassov srednei shkoly. Izd. 2-ee. Moskva, Gos.uchebno-pedagog.izd-vo M-va prosv. RSFSR, 1957. 119 p. (MLRA 10:10)
(Agriculture) (Agricultural machinery)

SHIBANOV A. A. kandidat pedagogicheskikh nauk.

International seminar on problems in teaching natural sciences
in schools. Biol. v shkole, no. 3:72-76. My-Je '57. (MLRA 10:6)

1. Institut metodov obucheniya Akademii pedagogicheskikh nauk RSFSR.
(Hamburg, Germany--Natural history--Congresses)

SHIBANOV, A.A., kandidat pedagogicheskikh nauk.

Biology in Mongolian schools. Biol. v shkole no.5:74-76 S-0 '57.
(MIRA 10:9)

1. Institut metodov obucheniya Akademii pedagogicheskikh nauk RSFSR.
(Mongolia--Biology--Study and teaching)

SHIBANOV, A.A.,kand.ped.nauk

Combining students' agricultural work with instruction.
Politekh. obuch. no.6:10-18 Je '57. (MIRA 12:4)
(Agriculture--Study and teaching)

SHIBANOV, Aleksey Aleksandrovich; PROFERANSOVA, N.V., red.; SOKOLOVA, R.Ya.;
tekhn. red.

[General science instruction in rural schools] Politekhnicheskoe
obuchenie v sel'skoi shkole. Izd.3., perer. i dop. Moskva, Izd-vo
Akad.pedagog.nauk RSFSR, 1958. 421 p. (MIRA 12:3)
(Agriculture--Study and teaching)

SHIBANOV, A.A., kand.ped.nauk

Biological and agricultural education in Hungaria schools. Biol. v
shkole no.2:68-70 Mr-Ap '59. (MIRA 12:4)

1. Institut metodov obucheniya APN RSFSR.
(Hungary--Agriculture--Study and teaching)

SHIBANOV, A.A., kand.pedagogicheskikh nauk

Study of biology and agriculture in secondary schools of the
German Democratic Republic. Biol.v shkole no.2:70-72 Mr-Ap
'60. (MIRA 13:8)

1. Institut metodov obucheniya Akademii pedagogicheskikh nauk
RSFSR. (Germany, East--Biology--Study and teaching)

SHIBANOV, A.A., kand.pedagogicheskikh nauk

Some problems in teaching agriculture to students of rural
secondary schools. Biol.v shkole no.4:51-55 J1-Ag '60.
(MIRA 13:7)

1. Institut metodov obucheniya Akademii Pedagogicheskikh nauk
RSFSR.
(Agriculture--Study and teaching)

SMIRNOV, V.P., inzh.; SHIBANOV, A.A., kand.tekhn.nauk

Using caisson shells made of panel-type elements. Transp. stroi. 14
no. 7:16-18 J1 '64. (MIRA 18:1)

UKHOV, Nikolay Nikolayevich; SHIBANOV, Anatoliy Anatolyevich;
KOGAN, Ye.L., red.

[Reliable and durable] Nadezhno, dolgovechno. Moskva,
Izd-vo "Znanie," 1965. 30 p. (Novoe v zhizni, nauke,
tekhnike. III Seriya: Ekonomika, no.10)

(MIRA 18:5)

SHIBANOV, A.F.

Truing rotary kilns following repairs. Orgneupory 27 no.5:239-241
'62. (MIRA 15:7)

1. Nikitovskiy dolomitnyy kombinat.
(Kilns, Rotary—Maintenance and repair)

S77/DO/RA-6 17-5

PAGE 1 FROM INFORMATION

SER/1677

Transistor, Principles & the Practical Transistor, PP, 5,
(Semiconductor Devices and Their Applications) Collection of Articles, No. 5,
Editor, Indra Srivastava, Radio, 1960, 270 p. No or copies printed not
given, etc. (See also Books)

M. (Editor, see also Books): Dr. A. Pedotov, Ed. (Transistor Book); I. M. Vol'vov, Ed. 1,
A. A. Shevchenko, Editorial Board; Dr. A. Pedotov (Prep. Ed.); N. A. Dvornikov,
I. G. Berez'ko, Dr. A. M. Novozhil', Dr. I. G. Oparin (Prep. Ed.); Yu. A.
Samoilov, Dr. I. Kozov, Dr. V. Krasnitsky, I. F. Shchegolev,
et al., and I. P. Shevelev.

PURPOSE: This collection of articles is intended for specialists working in the
field of semiconductor devices.

CONTENTS: The articles discuss basic transistor parameters, methods of measuring
them, and some problems in the use of transistor circuits. Two of the
articles describe the use of semiconductor diodes for precision amplification.
No personalities are mentioned. References accompany 11 of the 12 articles.

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SHAMOVSKIY, L.M.; SHIBANOV, A.S.

Structural defects in alkali halide crystal phosphors. Fiz.
tver.tela 3 no.7:2123-2130 Jl '61. (MIRA 14:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo
syr'ya, Moskva.
(Alkali metal halides) (Crystals--Defects)

20827

S/048/61/025/003/015/047
B104/B214

24700 (1136, 1143, 1160)

AUTHORS: Shamovskiy, L. M. and Shibanov, A. S.

TITLE: Lattice defects of crystal phosphors

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya,
v. 25, no. 3, 1961, 350-353

TEXT: This paper was read at the Ninth Conference on Luminescence (Crystal Phosphors) held in Kiyev from June 20 to June 25, 1960. In earlier papers, it was established by the present authors that the spectra of additional absorption and the luminescence of alkali halide phosphors are determined by activator ions which related to lattice defects. The character of the defects was not clarified in those papers. Attempts are made in this paper to clarify these questions by coloring the dislocations in the crystal volume and by selective etching of the surface of KCl-Ag and NaCl-Ag phosphors. The visualization (decoration) of the dislocations was made by additive coloring at 650-700°C for several days, and the selective etching was done with glacial acetic acid. It was found that the dislocation lines in the volume of the crystal made visible by chains

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Lattice defects of crystal...

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of colloidal metal particles correspond exactly to the etch pits on the surface of the crystal. The density of dislocations and the dimensions of the disoriented blocks do not depend on the concentration of the activator. The average size of the blocks in thoroughly annealed crystals is 200 - 500 μ . The density of dislocations depends on the heat treatment of the crystal and can change by 3 - 4 orders of magnitude. The coarse sub-structure of dislocations cannot be brought into agreement with the conception of two types of distribution of activators in the crystal and with the fact that the luminescence originates from the lattice defects. Experiments were performed to see if there exists a structure of defects besides the coarse mosaic structure in the alkali halide phosphors. This sub-microstructure was discovered in additionally colored crystals with a high activator concentration under the microscope by large magnification. The fine structure of defects appears in the form of accumulations of fine-disperse particles of the metal activator. It could be further established that the sub-microstructure is a peculiarity of crystal phosphors, and that the fine structure of defects cannot be detected by selective etching. Ch. B. Lushchik and A. S. Shibanov took part in the discussion of this paper. In this discussion, it was established that

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Lattice defects of crystal...

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the decoration of the substructural defects in crystal phosphors is not adequate for an affirmation on the localization of luminescence centers in lattice defects. R. I. Gindina is mentioned, and reference is made to the work of Dutch physicists. There are 1 figure and 9 references: 5 Soviet-bloc and 4 non-Soviet-bloc. The references to English-language publications read as follows: Amelinckx S., Acta Metallurgica, 6, No. 1, 34 (1958); Gilman, J. J., Johnston, W. G., J. Appl. Phys., 27, No. 9, 1018 (1956); Barber, D. J., Harvey K. B., Mitchell, J. W., Philos. Mag., 2, No. 17, 704 (1957).

X

Card 3/3

S/181/62/004/002/022/051
B101/B102

AUTHORS:

Shibanov, A. S., and Shamovskiy, L. M.

TITLE:

Particularities of the additive coloration of alkali-halide crystals in the presence of an activator

PERIODICAL: Fizika tverdogo tela, v. 4, no. 2, 1962, 443 - 448

TEXT: This paper was read at the II soveshchaniye po fizike shchelochnogaloidnykh kristallov (Second Conference on the Physics of Alkali-halide Crystals) at Riga in June, 1961, and deals with processes taking place in the crystal phosphors NaCl(Ag), KCl(Ag), and KI(Tl) containing different amounts of activator. The additive coloration took place in the saturated vapor of the alkali metal (700°C with chlorides, and 650°C with iodide). Microscopic examination of decolored crystals showed the following: (1) the formation of two zones of different color intensities (but only one zone in the case of NaCl(Ag) with more than 1 mole% Ag); (2) subsequent annealing at 700°C in the air did not change the position of the zones; (3) negative crystals of quadratic or rectangular shape, the faces of which were parallel to the <100> axis, were formed in the colorless part of NaCl(Ag) with more than 1 mole% Ag;

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(4) negative crystals were formed chiefly along dislocations, along the boundaries of disoriented blocks, or along needle-shaped or shapeless metal inclusions; (5) the greatest concentration of such pores can be observed along the boundaries of the decoloration zones; (6) dissolution of the crystals in glycerol has shown that these pores contain gas. Interpretation of the results: The decoloration of the donor metal into the conduction band of the crystal and to the subsequent compensation of the transferred charge as a result of the transfer of electrons of the crystal-phosphors is a two-stage process: At first, the capture levels of the activator are occupied by electrons, whereupon the atomic centers are enlarged by the diffusion of activator ions from the lattice to the centers of their reduction at crystal defects. There are 5 figures and 13 references: 11 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: B. H. Kear, P. L. Pratt, Phil. Mag., 4, 56, 1959; J. J. Gilman, W. G. Johnston, J. Appl. Phys., 29, 877, 1958.

Card 2/3

SHIBANOV, A.S.

Rate of the additive coloring of alkali halide crystals in the
presence of admixtures. Zhur.fiz.khim. 37 no.8:1866-1870
Ag '63. (MIRA 16:9)

1. Nauchno-issledovatel'skiy institut mineral'nogo syr'ya.
(Alkali metal halide crystals) (Phosphors)

L 24758-65 EWT(l)/EWT(m)/T/EWP(t)/SEC(b)-2/EWP(b) IJP(c) JD/JG

ACCESSION NR: AP5003465

S/0181/65/007/001/0312/0315

1
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AUTHOR: Shibanov, A. S.

TITLE: Concerning the equilibrium concentration of F-centers in
additively colored alkali halide crystals

21 21

SOURCE: Fizika tverdogo tela, v. 7, no. 1, 1965, 312-315

TOPIC TAGS: F center, equilibrium concentration, alkali halide
crystal, additive coloring, thermodynamic equilibrium

ABSTRACT: The author points out that since an additively colored alkali-halide crystal is an impurity semiconductor of the n-type, it is advantageous to determine the F-center equilibrium concentration by making use of concepts of the theory of the contact between a metal and semiconductor, since thermodynamic equilibrium of the crystal with the saturated vapor of the metal signifies thermodynamic equilibrium with the melt of the metal itself. The expression

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L 24758-65

ACCESSION NR: AP5003465

derived on this basis for the equilibrium concentration of the F-centers, using constants obtained from various sources, is in satisfactory agreement with the experimental results. It is concluded on this basis that the equilibrium concentration of the F-centers in additively colored crystals is determined by both external and internal factors relative to the colored crystal. In contrast with the statements made by Mott and Gurney (Electronic Processes in Ionic Crystals, Oxford, 1940), the equilibrium concentration is directly proportional to the equilibrium concentration of the ⁺ion vacancies in the uncolored crystal. Orig. art. has: 2 figures, 1 table, and 2 formulas.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut
minearl'nogo syr'ya, Moscow (All-Union Scientific Research Institute
of Mineral Raw Material)

SUBMITTED: 28Jan64

ENCL: 00

SUB CODE: SS

NR REF SOV: 002

OTHER: 012

Card 2/2

SHIBANOV, A.S.

Equilibrium concentration of F-centers in additively colored
alkali halide crystals. Fiz. tver. tela 7 no.1:312-315 Ja '65.
(MIRA 18:3)
1. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo
syr'ya, Moskva.

L 6449-66 EWT(m) JD/JW

ACCESSION NR: AP5019860

UR/0181/65/007/008/2423/2429

AUTHOR: Shibanov, A. S. 44,55TITLE: Effect of impurities on the diffusion of color centers in alkali halide crystals 31,44,55 52 99 8

SOURCE: Fizika tverdogo tela, v. 7, no. 8, 1965, 2423-2429

TOPIC TAGS: color center, physical diffusion, alkali halide, impurity center, crystal phosphor, electron trapping, sodium chloride, temperature dependence, activation energy 18

ABSTRACT: In view of the fact that the results of earlier investigations of color center diffusion apply only to crystal phosphors with high impurity concentration, the author examines similar diffusion in alkali halide crystals with low impurity concentration. This process is treated as a special case of diffusion in a solid with two types of trapping centers, in which reversible and irreversible capture of the diffusing component takes place. A general expression for the rate of propagation of the diffusion zone is obtained on the basis of a solution of Fick's second law with suitable boundary conditions. It is shown that variation of the content of the impurity ions leads to changes both in the temperature dependence of the color diffusion rate, and its dependence on the impurity concentration. To

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L 6449-66 APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001549410001-6

ACCESSION NR: AP5019860

confirm the results, the author measured the rate of additive coloring of the crystal phosphor NaCl(Ag) with silver concentrations ranging from 0.005 to 10 mol.%. The preparation of the phosphor and the test procedure are described briefly. The experimental temperature dependence was used to determine the activation energies of NaCl (1.95 ev) and of NaCl(Ag) with large silver concentration (3.1 ev). These values are close to the theoretical 2.14 and 3.1 ev, respectively. The dependence of the coloring rate on the concentration of the impurity Ag⁺ ions also agrees with the theoretically predicted concentration dependence. Orig. art. has: 4 figures and 9 formulas.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya, Moscow (All-Union Scientific Research Institute of Mineral Raw Materials) 44,55

SUBMITTED: 09Mar65

ENCL: 00

SUB CODE: SS, OP

NR REF Sov: 001

OTHER: 003

leb
Card 2/2

L 23153-66 EWT(i)/EWT(m)/EWP(t) IJP(c) JD
ACC NR: AP6006838 SOURCE CODE: UR/0181/66/008/002/0507/0510

AUTHOR: Shibanov, A. S.

ORG: All-Union Scientific Research Institute of Mineral Raw Materials, Moscow
(Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya)

TITLE: Relationship between the rate of diffusion of color centers in alkali halide crystals and the work function of the coloring metal Zn

SOURCE: Fizika tverdogo tela, v. 8, no. 2, 1966, 507-510

TOPIC TAGS: sodium chloride, color center, work function, potassium chloride, crystal phosphor

ABSTRACT: The author studies high temperature additive coloring of various unactivated and phosphor crystals in contact with the following metals: K, Na, ²⁷Sr, ²⁷Ba, ²⁷Mg, ²⁷Ca, ²⁷Cd. The melting points, work functions and ionization potentials of these metals are tabulated. The width of the color band was microscopically measured. The rate of diffusion for color centers was found to be the same for sodium, strontium and barium coloring of sodium chloride and potassium chloride crystals. The

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L 23153-66
ACC NR: AP6006838

rate of coloring for crystals in contact with magnesium was considerably slower. A similar result was observed for crystals with a low impurity concentration. Curves are given showing the relationship between the parabolic constant and the work function of the coloring metal for sodium chloride phosphor crystals activated by silver chloride and nickel chloride. A comparison of experimental and theoretical data shows that the rate of diffusion for color centers is exponentially related to the work function of the coloring metal in heavily doped crystals. According to this exponential relationship, the rate of additive coloring for crystals in contact with magnesium and cadmium at 1000°K should be less by 6 and 9 orders of magnitude respectively than that for those in contact with sodium. This agrees completely with experimental data. Orig. art. has: 3 figures, 2 formulas, 1 table.

SUB CODE: 20/ SUBM DATE: 09Jun65/ ORIG REF: 004/ OTH REF: 000

Card 2/2 ULR

BENUA, F.F.; DUKCR, Z.G.; KLYUSHENKOV, I.S.; KONSTANTINOV, V.P.;
KATLER, A.I.; MAYKOV, N.K.; PRAYSMAN, A.D.; SERGEYEV, V.I.;
TRUFANOV, V.G.; FEDOROV, V.F.; FRUMIN, S.R.; CHERTKOV, Kh.A.;
SHIBANOV, B.V.; VATASHKINA, S.A., red.izd-va; CHERNOV, M.I.,
red.; BODROVA, V.A., tekhn. red.

[Handbook on ship repairs in two volumes] Spravochnik po
remontu sudov v dvukh tomakh. Pod obshchey red. M.I. Chernova.
Moskva, Izd-vo "Rechnoi transport." Vol.2. 1963. 600 p.
(Ships--Maintenance and repair) (MIRA 16:9)

BENUA, F.F.; DUKOR, Z.G.; KLYUSHENKOV, I.S.; KONSTANTINOV, V.P.;
KOTLYAR, D.I.; MAYKOV, N.K.; PRAYSMAN, A.D.; SERGEYEV,
V.I.; TRUFANOV, V.G.; FEDOROV, V.F.; FRUMIN, S.R.;
CHERTKOV, Kh.A.; SHIBANOV, B.V.; CHERNOV, M.I., red.;
VITASHKINA, S.A., red.izd-va; BODROVA, V.A., tekhn. red.

[Handbook on ship repairs in two volumes] Spravochnik po
remontu sudov v dvukh tomakh. Pod obshchey red. M.I.
Chernova. Moskva, Izd-vo "Rechnoi transport." Vol.1. 1963.
550 p. (MIRA 16:12)

(Ships--Maintenance and repair)
(Marine engineering--Handbooks, manuals, etc.)

SHIBANOV, D.A.

Semiautomatic molding machine. Biul.tekh.-ekon.inform. no.4:13-
14 '60. (MIRA 13:11)

(Molding machines)

SHIBANOV, F.A.

The "Great chart" or the first original Russian map of the
Moscow state. Vest. LGU 2 no.5:99-102 My '47. (MIRA 12:9)
(Maps, Early)

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21381 SHIBANOV, F. A. Eolbshoy chertezh. (Prvaya Rus. Karta Mosk. Gosudarstva).
Trudy vtorogo usesoyuz. Geogr. S'ezda. T. III. M., 1949, S. 272-80.

SO: Letopis' Zhurnal'nykh Statey, No. 29, Moskva, 1949.

SHIBANOV, F. A.

20535 SHIBANOV, F. A. O nekotorykh voprosakh iz istokii kartografii Sibiri XVII v.
Uchen. zapiski (leningr. gos. un-t i n. Zhdanovr), Seriya georg. nauk, vyp. 5,
1949, s. 270-206.-Bibliogr. s. 305-06.

SO: LETOPIS ZHURNAL STATEY - vol. 28, Moskva, 1949

SHIBANOV, F.A.

Some problems from the cartographic history of Siberia of the 17th century. Uch.zap.Len.un. no.104:270-306 '49. (MIRA 10:1)
(Siberia- Cartography)

SHIBANOV, F. A.

Russia - Historical Geography

"Map of Ukrainian and Circassian towns from Moscow to the Crimea", Izv. Vses. geog. obshch., 84, no. 1, 1952

9. Monthly List of Russian Accessions, Library of Congress, March 1952 ~~1952~~ Uncl.

KRASIL'NIKOV, A. D.; SHIBANOV, F. A.

KRASIL'NIKOV, ANDREY DMITRIYEVICH. 1705-1770

Brief biographical information about the pioneer of Russian field astronomy. Izv. Vses. geog. obshch. 84, no. 2, 1952.

Monthly List of Russian Accessions, Library of Congress, October 1952. UNCLASSIFIED

UNCLASSIFIED.

...shnikov, I. A.

Cartography

"Some presentations of Russian cartography of the 17th century". Izv. Vses. geog. obshch. 84, No. 3, 1952.

9. MONTHLY LIST OF RUSSIAN ACCESSIONS, Library of CongressOctober 1952 Uncl.

1. SHIBANOV, F.A.
2. USSR (600)
4. Cartography
7. Principles in selecting geographical elements in Russian cartography at the end of the 16th and beginning of the 17th centuries. F. A. Shibanov, Izv. Vses. geog. ob-va 85 no. 2 '53.
9. Monthly List of Russian Accessions, Library of Congress, APRIL 1953, Uncl.

SHIBANOV, F.A.

Contribution of Russian geodetic science of the 19th century in determining
the shape and dimensions of the earth. Izv. Vses. geog. ob-va 85 no. 4:463-468
Jl-Ag '53.

(MLRA 6:8)

(Geodesy) (Earth--Figure)

SHIBANOV, F.A.

M.V. Lomonosov and Russian cartography. Vest. Len. un. 9 no.4:
123-134 Ap '54. (MIRA 8:6)
(Lomonosov, Mikhail Vasil'evich, 1711-1765) (Cartography)

GIZHITSKIY, Aleksandr Marianovich; SHIBANOV, F.A., redaktor; PORUNKOVA, G.G., redaktor; IVANOV, V.V., tekhnicheskij redaktor

[Manual for the determination of astronomical points] Posobie po opredeleniiu astronomiceskikh punktov. [Leningrad] Izd-vo Leningradskogo univ., 1955. 165 p. (MIRA 9:3)
(Astronomy, Spherical and practical) (Geographical positions)

SHIBANOV, F.A.

In memory of A.V. Graur; tenth anniversary of his death.
Vest. Len. un. 11 no.24:175-177 '56. (MLRA 10:2)

(Grauer, Aleksei Vasil'evich, 1893-1946)

SHIBANOV, F.A.

In memory of A.V. Graur; tenth anniversary of his death.

Vest. Len. un. 11 no.24:175-177 '56.

(MLRA 10:2)

(Grauer, Aleksei Vasil'evich, 1893-1946)

SHIBANOV, F. A.

KALESNIK, S.V., red.; DUROV, A.G., red.; BABKOV, I.I., red.; BORISOV, A.A., red.; ZOLOTNITSKAYA, R.L., red.; MAVRODIN, V.V., red.; MALYSHEV, M.O., red.; SHIBANOV, F.A., red.; KELAREV, L.A., red.izd-va; SEMENOVA, A.V., tekhn.red.

[St.Petersburg - Leningrad; a historicogeographical atlas]
Peterburg - Leningrad; istoriko-geograficheskii atlas [Leningrad].
(MIRA 11:4)
Pt.1. 1957. 54 p.

1. Leningrad. Universitet.
(Leningrad - Maps)

SHIRANOV, F.A.

First triangulation project in Russia [with summary in English].
Vest. IGU 12 no.24:171-176 '57. (MIRA 11:5)
(Triangulation)

GIZHITSKIY, Aleksandr Marianovich; SHIBANOV, F.A., dots, oty. red.;
SHCHEMELEVA, Ye.V., red.; SEMENOVA, A.V., tekhn. red.

[Collection of problems and examples in spherical and practical
astronomy] Sbornik zadach i primerov po sfericeskoi i prakticheskoi
astronomii. [Leningrad] Izd-vo Leningr. univ., 1958. 80 p.
(MIRA 11:12)
(Astronomy, Spherical and practical--Problems, exercises, etc.)

SHIBANOV, F.A.

Development of Soviet cartography [with summary in English].
Vest. LGU 13 no.12:154-61 '58. (MIREA 11:12)
Cartography

SHIBANOV, F.A.

Review of Russian cartographic publications in the 18th century.
[with summary in English]. Vest.LGU 13 no.18:158-163 '58.
(MIRA 12:1)

(Bibliography---Cartography)

SHIBANOV, F. A.

Russian field astronomy in the 18th century. Uch. zap. LGU
no.226:3-20 '58. (MIRA 11:11)
(Astronomy, Spherical and practical)

SHIBANOV, F.A.

~~A.D. Krasil'nikov as a pioneer in Russian field astronomy.~~
Uch. zap. LGU no.226:21-74 '58. (MIRA 11:11)
(Krasil'nikov, Andrei Dmitrievich, 1705-1773)

SHIBANOV, F.A.

Training of Russian cartography specialists in the 19th and
beginning of the 20th century. Uch. zap. LGU no.226:75-93
'58. (MIRA 11:11)
(Cartographers)

S/035/59/000/003/029/039
A001/A001

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1959, No. 3,
p. 82, # 2248

AUTHOR: Shibanov, F. A.

TITLE: Twenty Five Years of Cartography Department of the Leningrad
University

PERIODICAL: Uch zap. LGU, 1958, No. 226, pp. 212-216

TEXT: After giving a brief historical information on the training of personnel for cartography before the October revolution and during the first years of the Soviet power, the author describes the activities of the Cartography Department of the Leningrad University. Cartographic specialty was introduced in the Geographic Division of LGU in 1931. The main role in organization and development of the Cartography Department belonged to A. V. Graur who headed this Department up to 1946. In teaching cartography prevailed mathematical trend. Later on, in 1949, map study and composition trend was given to university education and at present mathematical trend has been restored. ✓

Card 1/2

S/035/59/000/003/029/039
A001/A001

Twenty Five Years of Cartography Department of the Leningrad University

At different times, in the Department worked the following persons: Yu. M. Shokal'skiy who lectured on map study, V. V. Akhmatov and A. M. Gizhitskiy who taught practical astronomy, V. V. Kavrayskiy who lectured on mathematical map study, V. P. Semenov-Tyan-Shanskiy, B. F. Nikitin who composed the manuscript "Methods of Map Compilation". The Department was headed by A. M. Gizhitskiy (1946-1952), A. P. Yushchenko (1952-1954), K. A. Zvonarev (since 1955 till now). Up to 1958, 347 specialists were trained by the Department. 24 people defended their dissertations. Scientific work in the Department manifested mainly in the composition of text-books and manuals. In the post-war time 25 works were published in the form of articles and monographs. The following works were published: "Mathematical Cartography" by A. V. Graur (2nd edition), "Tacheometric Tables" by A. V. Nikolayev, "Manual for Determining Astronomical Points" by A. M. Gizhitskiy, "Practical and Laboratory Works for the Course of Topography with Fundamentals of Cartography" by A. A. Pavlov.

S. A. Nikolayev

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

SHIBANOV, F.A.

Presumably a great Russian cartographer of the 1670's. Uch. zap.
LGU no.226:221 '58. (MIRA 11:11)
(Klishin, Leontii)

~~SHIBANOV, F.A.~~

"Mathematical cartography in the U.S.S.R. Part 2: Annotated bibliography in mathematical cartography and cartometry" by G.A.Ginzburg and others. Reviewed by F.A. Shibanov. Uch. zap. IGU no.226:225-227 '58. (MIRA 11:11)
(Bibliography--Cartography)
(Ginzburg, G.A.)

SHIBANOV, F.A.

A.F. Golubev, talented Russian cartographer and mathematician
of the middle of the 19th century. Ist.-astron.issl. no.5:257-268
'59. (MIRA 12:12)
(Golubev, Aleksandr Fedorovich, 1832-1866)

SHIBANOV, F.A.

A.P.Bolotiv; on the 150th anniversary of his birth and the
100th anniversary of his death. Geog.sbor. no.13:105-113 '59.
(MIRA 12:6)
(Bolotov, Aleksei Pavlovich, 1803-1853)

SHIBANOV, F.A.; KARPOVA, L.A., red.; KISELEVA, L.I., tekhn. red.

[Index of cartographic literature published in Russia from 1800 through 1917] Ukazatel' kartograficheskoi literatury, vyshedshei v Rossii s 1800 po 1917 god. Leningrad, Izd-vo Leningr. univ., 1961. 222 p. (MIRA 15:3)
(Bibliography--Cartography) (Bibliography--Surveying)

SHIBANOV, F.A.

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Ist.-astron.issl. no.7:315-334 '61. (MIRA 14:9)
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